CLAIMS

1. A method for optically pumping a light amplifying medium (14, 24), wherein at least one light source (14, 30, 40) is used for optically pumping the amplifying medium and this amplifying medium is encircled by a reflector (20), the wall (22) of which is able to reflect the light from the source, this method being characterized in that the reflector is partly or totally diffusive and in that the beam (18) directly stemming from the source is sent towards the wall of the reflector so that this beam undergoes successive partly or totally diffusive reflections thereon and the amplifying medium is placed out of this beam directly stemming from the source so that this amplifying medium is optically pumped by the sole light reflected by the wall of the partly or totally diffusive reflector.

2. An optical pumping module comprising a light amplifying medium (14, 24), at least one light source (16, 30, 40) for optically pumping the amplifying medium and a reflector (20) which encircles this amplifying medium and the wall (22) of which is able to reflect the light from the source, this module being characterized in that the reflector is partly or totally diffusive and in that the source is orientated so as to send the beam (18) directly stemming from this source towards the wall of the reflector so that this beam undergoes successive partly or totally diffusive reflections thereon and in that the amplifying medium is placed out of this beam directly stemming from the source so that this amplifying medium is optically

pumped by the sole light reflected by the wall of the partly or totally diffusive reflector.

3. The module according to claim 2, wherein the amplifying medium (24) forms a cylindrical rod with a substantially circular base, the light source (30, 40) is for transverse optical pumping of this medium and the wall (22) of the reflector (20) forms a cylinder with generatrices parallel to the (X) axis of the amplifying medium.

4. The module according to claim 3, wherein the reflector (20) has substantially the same length as the amplifying medium (24).

5. The module according to any of claims 3 and 4, wherein the base of the cylinder formed by the wall (22) of the reflector is selected from substantially regular polygons, ellipses and circles.

6. The module according to any of claims 3 to 5, wherein the light source is a light emitter (16, 40) and this light emitter is selected from a laser diode, a laser diode array, a row of laser diode arrays, a stack of laser diode arrays and a combination of this row and this stack, this (or these) array(s) being parallel to the generatrices of the cylinder formed by the wall of the reflector.

7. The module according to any of claims 3 to 6, further comprising several blocks (42, 44), each block comprising a planar face (46, 48), able to reflect the light from the source in a partly or totally diffusive

way, wherein the base of the cylinder formed by the wall of the reflector is a substantially regular polygon, this wall thereby comprising several sides, each of the latter being formed by two respective planar faces of two adjacent blocks.

8. The module according to claim 7, wherein the light source (40) is placed in a gap formed between two adjacent blocks (42, 44) in such a way that the light emerges from the thereby formed space between the respective planar faces of these two blocks and reaches the wall of the reflector.

9. The module according to claims 6 and 8, wherein both blocks (42, 44) are electrically conducting and the laser diode or the laser diode array(s) (40) are electrically powered via these two blocks.

10. The module according to any of claims 2 to 5, wherein the light source is a light emitter (16, 40).

11. The module according to any of claims 2 to 5, wherein the light source is a light propagation means (32, 36), one end of which is for receiving the light from a light emitter (34) and another end of which is for sending this light towards the wall (22) of the reflector (20).

12. The module according to any of claims 2 to 11, wherein the reflector is quasi-lambertian.